

Pending Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for processing a compressed bitstream comprising video data, the method comprising:

 parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

 obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

 identifying a reference sub-region based on at least the motion information;

creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

 storing the reference sub-region identified by the motion information and storing the reference window in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

 performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

2. (Previously Presented) The method of claim 1 further comprising retrieving the reference sub-region identified by the motion information from an off-chip memory separated from the on-chip memory by a bus.

3. (Previously Presented) The method of claim 2 wherein retrieving the reference sub-region comprises performing a direct memory access in an off-chip memory source based on the motion vector.

4. (Previously Presented) The method of claim 3 wherein the direct memory access includes accessing the off-chip memory source.
5. (Previously Presented) The method of claim 1 further comprising storing the motion information in the on-chip memory.
6. (Original) The method of claim 1 wherein obtaining motion information comprises extracting and decoding the set of motion vectors from the compressed bitstream.
7. (Previously Presented) The method of claim 1 wherein the time that the reference sub-region is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises the time required to complete a direct memory access to store the reference sub-region in the on-chip memory.
8. (Currently Amended) The method of claim 1 wherein the timing of reference sub-region storage varies with the amount of motion and complexity in the video data ~~the time that the reference sub-region is stored in the first memory before performing motion compensation using the set of motion vectors comprises an estimated time for a processor to reconstruct one macroblock.~~
9. (Original) The method of claim 1 wherein storing the reference sub-region further comprises storing multiple reference sub-regions.
10. (Original) The method of claim 9 wherein the multiple reference sub-regions are included in a reference window, the reference window comprising a set of reference window sub-regions.
11. (Currently Amended) The method of claim 10 wherein the timing of reference sub-region storage varies with processing speed of a processor that performs the motion compensation ~~further comprising:~~
- ~~creating the reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-region identified by the set of motion vectors; and~~
- ~~storing the set of reference window sub-regions in the on-chip memory source.~~
12. (Original) The method of claim 11 wherein the reference window has a trapezoidal array of reference window portions.
13. (Currently Amended) The method of claim 12 wherein the reference window comprises between about 4 and 128 reference window sub-regions ~~the reference sub-region identified by the motion information is the upper left reference window sub-region in the trapezoidal array.~~

14. (Original) The method of claim 1 wherein the video data comprises a macroblock.
15. (Original) The method of claim 1 further comprising converting the motion information to an DMA instruction.
16. (Original) The method of claim 1 further comprising obtaining motion information from a second compressed bitstream and performing motion compensation on video data included in the second compressed bitstream.

17. (Currently Amended) A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

identifying a set of reference window sub-regions based on at least the motion information;

creating a reference window that includes the set of reference window sub-regions identified by the motion information, where the reference window includes more reference sub-regions than a number of reference sub-regions identified by the motion information;

storing the ~~set of~~ reference window sub-regions included in ~~[[a]]~~ the reference window identified by the motion information in an on-chip memory before motion compensation using the motion information, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock, and wherein the set of motion vectors references a reference window sub-region in the set of reference window sub-regions; and

performing motion compensation on the video data using the reference sub-region stored on the on-chip memory.

18. (Currently Amended) The method of claim 17 wherein the timing of reference sub-region storage varies with the amount of motion and complexity in the video data. further comprising:

~~creating the reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-regions identified by the motion information.~~

19. (Original) The method of claim 17 wherein the reference window has a trapezoidal array of reference window sub-regions.

20. (Original) The method of claim 17 the reference sub-region identified by the motion information is the upper left reference window sub-region in the reference window.

21. (Currently Amended) A system for processing a compressed bitstream comprising video data, the system comprising:

means for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

means for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

means for identifying a reference sub-region based on at least the motion information;

means for creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

means for storing the reference sub-region identified by the motion information in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

means for performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

22. (Original) The method of claim 21 further comprising means for extracting and decoding the motion information from the compressed bitstream.

23. (Original) The method of claim 21 further comprising means for creating a reference window comprising the set of reference window sub-regions, the set of reference window sub-regions including the reference sub-region identified by the motion information.

24. (Currently Amended) A computer readable medium including instructions for processing a compressed bitstream comprising video data, the instructions comprising:

instructions for parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

instructions for obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

instructions for identifying a reference sub-region based on at least the motion information;

instructions for creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

instructions for storing the reference sub-region identified by the motion information and storing the reference window in an on-chip memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the on-chip memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

instructions for performing motion compensation on the video data in raster order and using the reference sub-region stored on the on-chip memory.

25. (Currently Amended) The computer readable medium ~~method~~ of claim 24, wherein

the on-chip memory forms a part of a processor, and

the processor is configured to perform the motion compensation.

26. (Currently Amended) The computer readable medium ~~method~~ of claim 25, wherein

the reference sub-region identified by the motion information is retrieved from an off-chip memory across a bus.

27. (Currently Amended) A method for processing a compressed bitstream comprising video data, the method comprising:

parsing a portion of the compressed bitstream before motion compensation on video data included in the portion;

obtaining motion information related to the video data, the motion information comprising a set of motion vectors;

identifying a reference sub-region based on at least the motion information;

creating a reference window that includes a set of reference window sub-regions, where the reference sub-region is the upper left reference window sub-region in the reference window;

retrieving the set of reference window sub-regions ~~reference sub-region~~ from a first memory;

storing the reference sub-region identified by the motion information in a second memory before performing motion compensation using the set of motion vectors, wherein a time that the reference sub-region and reference window is stored in the second memory before performing motion compensation using the set of motion vectors comprises an estimated time to reconstruct one macroblock; and

performing motion compensation on the video data in raster order using the reference sub-region stored on the first memory.

28. (Previously Presented) The method of claim 27 wherein the second memory source is an on-chip memory source.

29. (Previously Presented) The method of claim 27 wherein retrieving the reference sub-region comprises performing a direct memory access in the first memory source based on the motion vector.

30. (Previously Presented) The method of claim 29 wherein the first memory source is an off-chip memory source and the direct memory access includes accessing the first memory source.